

## REMARKS

Claims 1-27, and 29-83 are pending in the application. Claims 1 and 52 are currently amended. Claims 28 has been previously cancelled. Claims 84-92 have been previously withdrawn without prejudice.

Claims 1 and 52 have been amended to incorporate further limitations that the low molecular weight polyol is present at from about 1 pph to about 15 pph based upon the weight of said vegetable oil-based polyol. These amendments find support at, for example, line 20 on page 28, line 8 on page 31 and line 10 on page 33 of the original Specification, wherein it is disclosed that varying amounts of low molecular weight polyol may be added to the vegetable oil-based polyol.

No new matter has been introduced by the present amendments.

### **Claim Rejections – Obviousness-type Double Patenting**

Claims 1-27 and 29-83 stand rejected for obviousness-type double patenting over claims 1-5 of United States Patent 6,686,435 (the '435 Patent). The examiner recognizes that the present claims and the claims of the '435 Patent are not identical, but maintains that these claims are not patentably distinct from each other. All rejected claims depend directly or indirectly from 4 independent claims 1, 39, 51 and 52. Claims 1 and 52 have been amended to add further limitations that the low molecular weight polyol is present at from about 1 pph to about 15 pph based upon the weight of said vegetable oil-based polyol. Claim 39, as previously amended, recites an additional limitation that the crosslinker comprises a low molecular weight polyol which is from 1 pph to 10 pph based upon the weight of the vegetable oil-based polyol. Claim 51, as previously amended, recites an additional limitation that the crosslinker comprises glycerine which is from 5 pph to 10 pph based upon the weight of the soy based polyol. Applicant respectfully submits that these new limitations further distinguish Claims 1-27 and 29-83 from the claims of the '435 patent.

Applicant continues to traverse the Examiner's position that the low molecular weight polyol is part of the vegetable oil based polyol. The Examiner is of the position that the

vegetable oil based polyol can be deemed as containing two parts, one of which can act as a crosslinker. However, because the instant application defines "low molecular weight polyol" as a polyol having a molecule weight of less than one-half of the molecule weight of the vegetable oil-based polyol (See lines 16-17 on page 19 of the original Specification), the original disclosure requires that the low molecular weight polyol crosslinker be different from the vegetable oil-based polyol. The Examiner further maintains that because the molecular weight of the polyols is defined by average molecular weight, there is necessary a fraction within the polyols that have an molecular weight that is half of the average molecular weight of the polyols, as is required by the instant application.

The Examiner's line of reasoning is flawed. First, the '435 patent never contemplates use of a crosslinker, let alone teaching that the polyols contain a low molecular weight fraction possess crosslinking activity. It is speculative for the Examiner to say that the polyols of the '435 patent necessarily contains a low molecular weight fraction that also happens to possess crosslinking activity. Second, even if the '435 patent contains a low molecular weight fraction that also happens to possess crosslinking activity, it is merely speculative to maintain that this low molecular weight fraction necessarily has molecular weight that is about half of the molecular weight of the vegetable oil-based polyols, as is required by the present claims. For purpose of illustration, just because the average of a series of numbers ( $A_1, A_2, \dots, A_{n-1},$  and  $A_n$ ) is 10 does not necessarily mean that there must be at least one number in this series that is less than 5, which is one-half of 10. Whether or not such a low molecular weight fraction can be found depends on the molecular weight distribution (MWD) of the polyols. Indeed, the '435 patent teaches that the polyols are prepared in a way that the MWD is very narrow. Lines 40-47, Col. 5 of the '435 patent. Although the '435 patent does not specify how narrow the MWD is, this teaching of the narrow MWD, if anything, counters the Examiner's assumption that a low molecular weight fraction that is about half of the average molecular weight of the polyols exists. Thus, it is merely speculative for the Examiner to assert that there is necessarily a fraction in the polyols of the '435 patent that can satisfy the definition of "low molecular weight polyols" as defined by the instant claims.

Even if we assume that the vegetable oil based polyols do contain a fraction of low molecular weight polyols that functions as crosslinker, there is still missing the limitation that the low molecular weight polyol is present at from about 1 pph to about 15 pph (Claims 1 and 52) or 10 pph (Claim 39) based upon the weight of said vegetable oil-based polyol. There is no reference in the '435 patent that would suggest such a range to one of ordinary skills. Thus, the present claims, as currently amended, are not rendered obvious by the '435 patent.

Applicant further traverses the Examiner's rejection of those claims reciting glycerine because the '435 patent does not disclose nor suggest the use of glycerine. For instance, Claim 51 of the present application recites a composition prepared by using as crosslinker glycerine in the amount of from 5 pph to 10 pph by weight of the soy polyol. The '435 patent does not teach or suggest use of glycerine as a crosslinker, nor does it suggest that the vegetable oil-based polyol contains glycerine. The Examiner asserts that the polyols of the '435 patent contains "residual polyols such as glycerine from the reaction involved in making the patentee's claimed polyols." Lines 1-2 on page 6 of the Office Action dated 2/26/07. Applicant disagrees with the Examiner's position that the polyols of the '435 patent necessarily contains glycerine. Applicant respectfully requests that the Examiner point out specific pages in the '435 patent where the existence of glycerine is disclosed or suggested. Applicant observes no reference to the term "glycerine" and sees no reasons why one of ordinary skill would infer from the '435 patent disclosure that the reaction described therein necessarily generates glycerine. Withdrawal of the rejection obviousness-type double patenting over claims 1-5 of the '435 Patent is respectfully requested.

Claims 1-7, 9-11, 13-16, 20-27, 35-52, 54-60, 63, 67-74, 78-81 and 83 stand rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent 2,902,388 to Szukiewicz ("Szukiewicz"). Applicant respectfully traverses this rejection and requests withdrawal of same. Although Szukiewicz teaches a hydraulic cement-polyurethane composition containing polyols, there is no mention of a crosslinker that is primarily made up of low molecular weight polyols. Even if we assume that the polyols disclosed in Szukiewicz contain a low molecular weight fraction that may serve as a crosslinker, there is no teachings

in Szukiewicz that would suggest to one of skills that such a fraction possesses a molecular weight that is about half of the molecular weight of the vegetable oil-based polyols.

It is well known that the average molecular weight is determined by the relative distribution of polyols of various molecular weight. However, Szukiewicz merely discloses that the molecular weight range of the polyols is from 300-2,300. Lines 25-30, Col. 2. Because Szukiewicz provides no information regarding the molecular weight distribution of the polyols, one of ordinary skill in the art would not be able to ascertain the average molecular weight of the polyols disclosed in Szukiewicz. Thus, it is merely speculative to assume that there exists a fraction of low molecular weight polyols within the greater pool of polyols disclosed in Szukiewicz whose molecular weight is about half of the molecular weight of the vegetable oil-based polyols.

Szukiewicz also fails to teach the use of glycerine as a crosslinker as is recited by present claims 51, 72-74 and their dependent claims. Even if we assume that Szukiewicz inherently teaches a low molecular weight fraction of polyols that can serve as a crosslinker, it is against the plain language of Szukiewicz to state that glycerine is inherently part of such a low molecular weight fraction. The chemical formula of glycerine is  $C_3H_5(OH)_3$ , with a molecular weight of about 92. By contrast, Szukiewicz teaches that “polyols having molecular weights below 300 are too brittle” to be used. See lines 26-31, Col. 2. It is therefore mistaken for the Examiner to maintain that Szukiewicz anticipates those claims reciting glycerine when Szukiewicz teaches away from the use of glycerine.

Even if we assume that the polyols of Szukiewicz do contain a fraction of low molecular weight polyols that functions as crosslinker, there is still missing the limitation that the low molecular weight polyol is present at from about 1 pph to about 15 pph (Claims 1 and 52) or 10 pph (Claim 39) based upon the weight of said vegetable oil-based polyol. There is no reference in the Szukiewicz patent that would suggest such a range to one of ordinary skills. Thus, the present claims, as currently amended, are not rendered obvious by the Szukiewicz patent. Taken together, because not all limitations of the present claims are described in the Szukiewicz patent, withdrawal of the §102(b) rejection is respectfully requested.

Claims 1-7, 9-11, 13-16, 20-27, 35-60, 63, 67-74, and 78-83 stand rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent 2,902,388 to Szukiewicz. Applicant respectfully traverses this rejection and requests withdrawal of same. As explained above, Szukiewicz fails to teach or suggest every limitation of the present claims. The Examiner also fails to provide reasons why a skilled artisan would be motivated to modify the teachings of Szukiewicz in order to arrive at the invention presently claimed, such as the use of a low molecular weight polyol as a crosslinker to improve the mechanical property of the concrete composition. Thus, the Examiner fails to establish a prima facie case of obviousness and withdrawal of the rejection is respectfully requested.

For the foregoing reasons and with the amendments currently presented, Applicant is respectfully seeking a Notice of Allowance in the next Office Communication. Applicants' attorney urges Examiner Niland to telephone if a conversation could expedite prosecution. The Commissioner is authorized to charge any required fees to deposit account 12-0600.

Respectfully submitted,

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